What is claimed is:

1. A fiber bundle comprising a plurality of fibers attached to each other in a fixed position with respect to each other wherein the fibers have different agents of interest immobilized in or on different fibers.

2. The fiber bundle according to claim 1 comprising at least 100 different fibers.

3. The fiber bundle according to claim 1 wherein the agent of interest is selected from the group consisting of a microorganism, ligand, antibody, antigen, nucleic acid, polysaccharide, receptor, plant or animal cells, organelles and fractions thereof.

4. The fiber bundle according to claim 1 further comprising a plurality of solid phases immobilizing said agents of interest wherein said solid phase is immobilized in or on the fibers.

5. The fiber bundle according to claim 4 wherein said solid phases are particles or thread-like structures embedded in the fibers.

6. The fiber bundle according to claim 1 wherein all or most of the fibers contain a different immobilized agent of interest.

7. The fiber bundle according to claim 1 wherein at least one of the fibers contains a dye.

8. The fiber bundle according to claim 1 wherein different fibers contain different concentrations of the agent of interest.

9. The fiber bundle according to claim 1 wherein each fiber contains no more than one immobilized agent of interest.

10. A method of forming the bundle of claim 1 comprising

a) immobilizing different agents of interest in or on different fibers,

b) aligning the fibers in a fiber bundle, and

c) fixing the arrangement of fibers in the fiber bundle.

11. The method of claim 10 wherein said immobilizing comprises mixing an agent of interest in a liquid and solidifying the liquid to form a fiber.

12. The method of claim 11 wherein a liquid mixture of the agent of interest is cast into a fiber.

13. The method of claim 11 wherein the liquid contains a polymer gelling material.

14 The method of claim 11 wherein the liquid contains a polymerizable monomer.

15. The method of claim 10 wherein said immobilizing comprises immobilizing an agent of interest to a preformed fiber.

16. A method for making an array comprising forming the fiber bundle of claim 1 and cutting the fiber bundle transversely or at an angle to form a section such that the fixed position with respect to each other is maintained.

17. The method of claim 16 further comprising mounting said section to a solid support to form an array.

18. The method of claim 16 wherein said sections are less than 1 cm thick.

19. An array comprising a plurality of cells in a known location on the array, each cell containing an agent of interest immobilized in or on at least a portion of a fiber, wherein different cells contain different fibers or portions of a fiber which contains a different agent of interest immobilized therein or thereon, and wherein each agent of interest is located in a known cell.

20. The array of claim 19 wherein the array contains portions of each fiber prepared by cutting a section from said fiber.

21. The array of claim 20 wherein the cells each contain one well or channel.

22. An array prepared by the method of claim 16.

23. An array prepared by the method of claim 17.

24. An array prepared by the method of claim 18.

25. A binding assay for detecting an analyte in a sample wherein said analyte binds to at least one agent of interest in an array comprising;

contacting a sample suspected of containing an analyte with the array of claim 19 under conditions permitting the binding of analyte to agent of interest,

detecting the presence or absence of binding between analyte and each cell in the array, and

determining the presence or absence of the analyte by the presence of any binding being detected at a predetermined cell of the array.

26. The binding assay of claim 25, further comprising;

adding a labeled detection agent capable of binding to cells having either analyte bound to agent of interest or cells not having the analyte so bound, but not both, and

detecting the presence of the labeled detection agent in one or more cells of the array.

27. A binding assay for detecting an analyte in a sample wherein said analyte binds to at least one agent of interest in an array comprising;

contacting a sample suspected of containing an analyte with the array of claim 22 under conditions permitting the binding of analyte to agent of interest,

detecting the presence or absence of binding between analyte and each cell in the array, and

determining the presence or absence of the analyte by the presence of any binding being detected at a predetermined cell of the array.

28. The binding assay of claim 27, further comprising

adding a labeled detection agent capable of binding to cells having either analyte bound to agent of interest or cells not having the analyte so bound, but not both, and

detecting the presence of the labeled detection agent in one or more cells of the array.

29. A method of determining whether the fibers in the bundle of claim 1 are aligned comprising illuminating fibers individually at one end of the bundle and photoelectrically identifying the location of a signal at the other end of the bundle.

30. A microarray comprising a solid phase support and at least about 500 cells per square centimeter wherein each cell contains a agent of interest that is not chemically bound to the solid phase support.

31. The microarray of claim 30 containing at least about 1,000 cells per square centimeter.

32. A microarray comprising a solid phase support and at least about 500 cells per square centimeter wherein each cell contains an agent of interest which is a macromolecule, a microorganism, a plant or animal cell, an organelle or a fraction of a biological cell.

33. The microarray of claim 32 containing at least about 1,000 cells per square centimeter.

34. A microarray comprising a solid phase support and at least about 500 cells per square centimeter wherein each cell contains an agent of interest that was synthesized prior to contacting the solid phase support.

35. The microarray of claim 34 containing at least about 1,000 cells per square centimeter.

36. A microarray comprising a solid phase support and at least about 500 different cells per square centimeter wherein each cell is formed by a solid material adhered to said solid phase support wherein each solid material contains a agent of interest.

37. The microarray of claim 36 containing at least about 1,000 cells per square centimeter.

38. A multiwell plate containing at least about 500 wells per square centimeter.

39. The multiwell plate of claim 38 wherein walls of the wells are made of

a heterologous material from a base of the well.

40. A thin elongated fiber impregnated with a solid phase wherein the solid phase is bound to a agent of interest.

41. A solid phase construct containing an immobilized agent of interest comprising an embedding medium, a porous or hollow solid phase and a agent of interest,

wherein the agent of interest is immobilized on inside surfaces of the porous or hollow solid phase,

wherein the porous or hollow solid phase is embedded in the embedding medium, and

wherein the inside surfaces are exposed to the surface of the construct by cleaving such that individual porous or hollow solid phases are cleaved in plural sections.

42. A microarray containing a plurality of different cells wherein each cell contains a solid phase support, a porous particle containing a agent of interest immobilized on an inside surface of a porous particle and a medium for attaching said particle to said solid phase support in a particular cell.

43. The microarray of claim 42 wherein the porous particle has been cleaved to expose agents of interest on inner surfaces of the porous particle.

44. An elongated fiber having an agent of interest immobilized thereon or therein such that a detectable number of single agents of interest are present in each millimeter of fiber length.

45. A cross-section of the fiber of claim 44 containing a detectable number of the agent of interest.

46. A fibrous structure comprising;

at least two fibers of claim 44 being fixed in parallel juxtaposition to each other, and

at least two agents of interest being immobilized in or on the fibers, wherein each fiber contains a different agent of interest.

47. The fibrous structure of claim 46 wherein each of said at least two fibers contains one but not the other agent of interest.

48. The fibrous structure of claim 46 wherein at least 10 different fibers are present.

49. The fibrous structure of claim 48 wherein each fiber contains only one agent of interest, being substantially free of other agents of interest.

50. The fibrous structure of claim 46 wherein each fiber contains a mixture of plural agents of interest and each fiber contains a different mixture of plural different agents of interest.

51. A fiber cross-section structure comprising a cross-section of at least two fibers, each fiber being set in parallel juxtaposition to another fiber, and at least two agents of interest being immobilized in or on the fibers, wherein each fiber contains a different agent of interest.

52. The fiber cross-section structure of claim 51 wherein each of said at least two fibers contains one but not the other agent of interest.

53. The fiber cross-section structure of claim 51 wherein at least 10 different fibers are present.

54. The fiber cross-section structure of claim 53 wherein each fiber contains only one agent of interest, being substantially free of other agents of interest.

55. The fiber cross-section structure of claim 51 wherein each fiber contains a mixture of plural agents of interest and each fiber contains a different mixture of plural different agents of interest.

56. A microarray comprising a solid block on an inert solid support, the solid block containing a plurality of cells exposed to the surface of the block wherein each cell contains a different agent of interest and was independently prepared and embedded into the solid block before mounting on the inert solid support.

57. The microarray of claim 56 wherein the block is less than 50 μm thick.

58. The microarray of claim 57 wherein the block is less than 20 μm thick.

59. The microarray of claim 56 wherein the block contains at least 100 cells.

60. The method of claim 10 further comprising assaying each of said fibers for the presence of each of the different agents of interest before said aligning the fibers in a fiber bundle.

61. A method of forming the bundle of claim 1, comprising: aligning the fibers in a fiber bundle; passing liquids containing different agents of interest through or contacting different fibers and fixing or allowing the different agents of interest to become fixed in or on fibers in the fiber bundle.

62. The method of claim 61, wherein said agent of interest in said liquid is immobilized by solidifying the liquid.

63. The method of claim 62, wherein the liquid contains a polymer gelling material.

64. The method of claim 62, wherein the liquid contains a polymerizable monomer.

65. The method of claim 61, wherein said agent of interest is immobilizing on or in a preformed fiber.

66. A microarray comprising: a solid phase having a surface, and a plurality of structures bound to said surface, wherein each of a plurality of structures has an immobilized agent of interest available for binding to a target, wherein the target is a binding partner for the agent of interest, and wherein the microarray contains a plurality of different agents of interest in a corresponding plurality of different structures.

67. The microarray of claim 66, wherein the structures are permeable to the target.

68. The microarray of claim 67, wherein the structures are a gel.

69. The microarray of claim 66, wherein the structures are made of impermeable material and the agent of interest is immobilized on a surface thereof.

70. The microarray of claim 69, wherein each of the structure forms a hollow chamber with the agent of interest immobilized on an inner surface of the

hollow chamber.

71. A microarray comprising:

a solid phase having a flat surface,

and a plurality of structures projecting away from the plane of the solid phase, wherein each of a plurality of the structures an agent of interest, wherein the agent of interest is available for binding to a target in a sample applied to the microarray, wherein the target is a binding partner for the agent of interest, and wherein the microarray contains a plurality of different agents of interest in a corresponding plurality of different structures.

72. The microarray of claim 71, wherein the structures are made of impermeable material and the agent of interest is immobilized on a surface thereof.

73. The microarray of claim 71, wherein solid material between the structures is removed.

74. A method of manufacturing a microarray device comprising:

synthesizing at least one functional moiety onto a plurality of fibers wherein one or more fibers receives at least one moiety, bundling said plurality of fibers in a predetermined arrangement;

bonding or fixing said bundled plurality of fibers to fix the positions of the fibers;

and cleaving said bundled fibers into a plurality of chips to be deposited at a specific address on a solid phase.

75. The method of claim 74, wherein said at a least one functional moiety is selected from the group consisting of DNA, oligonucleotides, proteins, peptides,

polysaccharides, lipids, carbohydrates and small organic compounds.

76. The method of claim 74, wherein said fibers are comprised of a heterogeneous matrix of at least two or more materials having dissimilar physicochemical properties.

77. The method of claim 76, wherein said heterogeneous matrix comprises a mixture of materials selected from the group consisting of plastics, hydrogels, glass fibers, wax, clay, colloid suspensions, alginates, and dextrans.

78. The method of claim 76, wherein at least one of the materials comprising said heterogeneous matrix receives at least one functional moiety.

79. The method of claim 78, wherein said at a least one functional moiety is selected from the group consisting of DNA, oligonucleotides, proteins, peptides, polysaccharides, lipids, carbohydrates and small organic compounds.

80. The method of claim 79, wherein said at least one functional moiety is a protein.